

RESEARCH MONITORING METHODS OF INFORMATION SYSTEMS AND NETWORKS SPECIAL PURPOSE

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Based on the research it was established [1, 6] that the quality of operation of information and telecommunication networks for special purposes significantly depends on the quality of operation of fiber-optic transmission systems (FOTS), optical means and fiber-optic communication lines (FOCL) based on WDM/DWDM and HDWDM (Wavelength Division Multiplexing/Dense WDM&High Dense WDM) technologies.

To solve this problem, automated monitoring systems for information systems and special-purpose communication networks using spectral division multiplexing (SDM) technology are studied.

The conducted studies [2, 3] have shown that improving the quality of operation of information systems and special-purpose networks based on fiber-optic communication lines, consisting of PROM, FOC and POM, requires solving a whole range problems, including monitoring, diagnostics, control and management of the telecommunications network, planning and effective placement of network infrastructure and the development of new services that provide high-quality service and increased user satisfaction.

The solution to these problems lies in the sphere of management, control and monitoring of the process of operation of information systems and networks using fiber-optic networks of communication operators. However, this is one of the most important and complex tasks in information systems and special-purpose communication networks, therefore, telecommunication companies always pay a lot of attention to this problem.

In order to effectively manage information systems and special-purpose networks using advanced technologies, it is necessary to constantly monitor a variety of parameters of its network infrastructure.

The values of these parameters form a database for analyzing the operation of information systems and networks using fiber-optic transmission systems - FOTS.

Analysis of the operation of these systems is extremely necessary for the timely detection of emerging problems and localization of their sources.

One of the possible approaches to solving such problems is based on a qualitative analysis of information network monitoring distributed telecommunication networks.

In this work, the object of the study is the information system of automatic monitoring for fiber-optic communication lines, and the analyzed material is the documentation, timely detection and prompt elimination damage occurring in the PROM, FOC and POM.

In this case, a passive information network monitoring scheme is used, which is carried out without violating the integrity of the telecommunications network.

We examined the structural diagram of the monitoring system of the FOTS network link using the control system, which consists of a monitoring and control system, a source and consumer of content, a model of the transport information system and network, as well as a database (DB) and a PC with a printing device for collecting, storing and documenting the results of the monitoring system.

Remote control of information systems using optical fibers is performed by an optical pulse reflectometer, diagnosing the state of the fiber by the backscattering of a light wave when introducing probing pulses into the fiber. At the same time, the system allows monitoring of communication networks using hardware and software complexes, both free and busy communication paths.

Thus, on the basis of the proposed structural and functional diagram of the monitoring system of the link of the information system and the network, the problem of multiple centralized control of the state of telecommunication networks is solved with the purpose of its documentation, timely detection and prompt elimination of damage occurring in the system as a whole. These capabilities of the monitoring and control system significantly reduce the time required to find faults and simplify preventive maintenance of information systems and special-purpose networks.

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